VIRGINIA WILDLIFE

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V. C. C. Photo by Flournoy

A placid pool and thoughts of trout.

VIRGINIA WILDLIFE

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A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and Related Natural Resources, and to the Betterment of Hunting and Fishing in Virginia

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Cover

The eastern bluebird (Sialia sialis) is a year-round resident of Virginia. It is a welcome visitor to orchards, farms and semi-open areas. This beautiful kodachrome brings out the colorful splendor of one of our most popular song birds.

National Audubon Society Photo

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J. J. SHOMON, *Editor*
W. C. KELLNER, *Associate Editor*
L. G. KESTELOO, *Photography*
FLORENCE BLANKENSHIP, *Circulation*

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SOIL-BANK PLAN GIVES HOPE TO GAME CONSERVATIONISTS

NO group in the country received President Eisenhower's soil-bank proposal with more enthusiasm than did state game officials. If 25,000,000 acres now in agricultural crops can be devoted to fertility-restoring grasses, shrubs and trees, it will mean an increase in game birds and animals such as has not been even hoped for since wildlife shortages first became evident.

Last autumn 15,000,000 hunters roamed the land. Next fall they will be joined by nearly another 1,000,000 if precedent prevails. The great majority will pursue game types that are found only in farming territory. Cottontail rabbits, quail and pheasants will command most attention; a few million will shoot mourning doves, and a handful will have a long chance at prairie chickens in no more than three states. The average Nimrod will spend long hours afield for every ounce of trophy finally carried home.

The greatest deterrent to propagation of these species is not the gun, but modern agriculture. It wipes out nesting and loafing places, eliminates cover that protects the animals from enemies and weather, and reduces food supplies. Today's limit on pheasants which may be taken out of South Dakota is less than a third of what it was a decade ago, all because several million acres formerly producing volunteer and unharvested grasses were planted to annual grain crops. Only yesterday Missourians legally shot rabbits the year 'round, and thousands of dozens were trapped and exported to restock other states where clean cultivation had all but extirpated them.

Then clean cultivation came to Missouri, with a consequent reduction in grassland. The bunny population sagged, and protective regulations were invoked to preserve a shootable supply. Close pasture grazing as the southeast went into the beef business cut down the wintering grounds of mourning doves—the only migrant among the farm-game species—and reduced their numbers alarmingly. The prairie chicken is today so far gone before the plow that conservationists in a dozen states are rallied in a desperate effort to acquire a sizeable grassland area where a remnant may be preserved.

How to maintain supplies in the face of mounting demand and shrinking habitat has had game officials in a dither. Nearly one half the money available under the Federal Aid to Wildlife Restoration Act is being spent by 37 states in improving game cover on privately-owned farm lands. Last year, this total approached $10,000,000. Nesting sites have been preserved or created, and food and shelter provided in swales and unused corners. Most of these projects were tiny—frequently only a fraction of an acre—and though the attempt was a step in the right direction, results were but a drop in the bucket.

Now comes a plan which would give similar treatment to millions of acres and leave them undisturbed for a period of years. Furthermore, the retired croplands would be in sizable blocks and as well distributed across the map as are the country's farms. Birds and beasts are quick to find such sanctuaries from man's slicking-up propensities. They move in readily, proceed to multiply and then venture abroad from the new homesite. If Mr. Eisenhower's soil bank materializes and each acre under it could produce only one or two varieties of game not produced there previously—a not unreasonable expectation—it would mean not only relief for harassed game officials but happier hunting for the ever-growing legion of sportsmen.

By Harold Titus from Saturday Evening Post

"The most important characteristic of an organism is that capacity for internal self-renewal known as health.

There are two organisms whose processes of self-renewal have been subject to human interference and control. One of these is man himself (medicine and public health). The other is land (agriculture and conservation).

The effort to control the health of land has not been very successful. It is now generally understood that when soil loses fertility, or washes away faster than it forms, and when water systems exhibit abnormal floods and shortages, the land is sick." — Aldo Leopold.

After much research in the field, biologists are coming to the regretf ul conclusion that in many parts of the United States, including areas in Virginia, there are too many deer.

TOO MANY DEER

By. A. STARKER LEOPOLD, Ph.D *

THE shy deer, drifting through forest shadows and bounding over brushy hills, is blissfully ignorant of the fact that for decades it has been a subject of fierce polemics. The point of contention has been: Should the deer population be curbed or be helped to multiply? Nature lovers want more deer to look at and hunters want more of them to shoot. On the other hand, gardeners, ranchers and foresters would like to see fewer of them because they eat up too much vegetation. Government conservationists have had a difficult time trying to find a formula which would satisfy these conflicting interests.

After much research in the field, biologists are coming to the regretful conclusion that in many parts of the U. S. we have too many deer. The charming animals have a tendency to outgrow their food supply and sink into a gaunt, enfeebled existence. The ecological evidence strongly suggests that it would be best for all concerned, including the deer population itself, if many more deer were shot.

Studies of the population dynamics of deer disclose some paradoxes. Most people probably associate deer with the forest primeval, but actually they do best in lands that have been cleared and settled by man. Unlike other wild ungulates such as the bison, the caribou and the mountain goat, which tend to disappear as man disturbs their natural ranges, deer thrive on new or secondary vegetation. Their favorite foods are shrubs and young trees. In the western mountains, for example, the ranges that support the most deer are cut or burned timberlands which have grown up to wild lilac shrubs and mountain mahogany, scrub oak, willow and aspen trees. Similarly in the eastern U. S. deer favor the second-growth lands where palatable young trees grow in place of the original forest. This kind of vegetation is called "subclimax." A climax (mature) forest generally supports few deer.

It follows that a given range changes in deer-carrying capacity. After a forest has been logged or burned, the new young growth may support a large deer population for a time. But as the canopy of trees closes over again, reducing the supply of shrubs and other young vegetation, the deer dwindle in numbers. By periodic logging or burning, we can produce the conditions that will maintain a high deer population. However, the deer themselves may create a Malthusian scarcity. Protected populations of deer often consume the food supply of their range long before it would have disappeared naturally.

Food is the all important regulator of their numbers. Curiously, the presence of wild animals that prey on deer seems to have comparatively little effect on the size of their population. In parts of Mexico where lions and wolves are still numerous, the size of deer herds still seems to be a function of the deer's food supply. Poor ranges support few deer; good ranges support many deer, predators notwithstanding.

In recent years biologists have studied in considerable detail how food regulates deer numbers. They have learned a great deal about the ways in which nutrition influences the deer's birth and death rates.

A female deer in perfect health is capable of producing one offspring in her first breeding season and a litter of

*A. Starker Leopold is associate professor of zoology at the University of California, where he teaches wildlife conservation and management. This article is reprinted with permission from SCIENTIFIC AMERICAN, November, 1955, Vol. 193, No. 5.

two each year thereafter. But because of seasonal shortages of the most nutritious food, few herds in the wild approach this potential rate of increase. Studies in New York State of the white-tailed deer, which may ovulate and breed during the first year after birth, showed that only 20 to 40 percent of the female fawns on the best wild ranges actually became pregnant. On poor ranges practically no fawns bred. Similar studies of the western mule deer, which can bear its first offspring when it is two years old, showed that on poor ranges or under crowded conditions most females do not bear young until they are at least three years old.

Thus poor diet clearly delays the age at which deer reach sexual maturity. It also reduces the number of young a doe may bear after she starts breeding. On a good range twins are common, and the average pregnancy rate may be 160 to 175 fetuses per 100 does. In contrast, on poor ranges the females rarely bear more than a single offspring. The pregnancy rate may be as low as 80 fetuses per 100 adult females. Moreover, many of these apparently are lost at birth or shortly afterward, for it is frequently observed that the number of fawns following their mothers in early summer is considerably below the number of pregnancies counted in the same herd a few months earlier. Presumably poor nutrition of the breeding females, resulting in failure of the pregnancy or the birth of weak fawns, is responsible for these losses.

In short, shortages of nutritious food strike hard at the ability of deer to reproduce. In some cases this can be related directly to the amount of competition among the deer for the available food. For example, when a large part of a herd is killed off by hunters or by winter conditions, the productivity of the females increases considerably, sometimes twofold, the following season.

As diet is the basic regulator of the deer's rate of reproduction, so also it controls their chances of survival. In cold climates winter is the critical season. A well-fed herd can easily endure cold and snow. But if food becomes scarce or poor in quality, the deer's vulnerability rises sharply. In the colder areas of North America hundreds of thousands of deer die during an average winter, and probably millions during a severe one. The herd usually eats up all the nutritious forage early in the winter and then has to subsist on second-choice foods of low digestibility. Most of those that perish die directly of starvation. But the weakened deer also become prey to other causes of death. Even in a warm climate undernourished deer die on an epidemic scale—from parasites and diseases if not from starvation.

One way or another, the herd is balanced to its food supply. For example, in a certain range of natural chaparral growth on the coast of California, the deer population averages about 20 animals per square mile. It has been found that a range in the same region where the year-round food supply has been improved by controlled burning and seeding of grasses can support three times as large a population—an average of about 60 deer per square mile. However, the better range, paradoxically, has a higher death rate. This fact is not so mysterious if we remember that in a stable population deaths must balance births. The better range is stabilized at a higher density, but since more deer are born, more must die to keep the herd at the limit imposed by the supply of food. Thus on the poorer range the annual turnover rate (the number of deaths replaced by births) is about 30 per 100, while on the better range it is 40 percent or more.

If we convert these statistics into a life-expectancy table, it becomes clear that the better the range and the higher the population, the shorter will be the average life span of the individual deer. This paradox has implications which go beyond the competition for food. Apparently density per se has adverse effects upon a population. And indeed close studies not only of deer but also of elk and of laboratory rats have indicated that high population density produces considerable bickering which cause nervous strain and physical weakening.

A good deal of study has been given to the dietary requirements of deer. It has been demonstrated that they need foods rich in protein and probably also in easily digestible carbohydrates. Like other ruminants, deer can convert woody material to food by breaking down cellulose to digestible compounds with the help of bacteria in their stomachs. But they seem to need sugar in their food to catalyze this bacterial action, and they require minerals and vitamins as well. The intensive chemical and physiological studies of deer diet should soon enable biologists to tell precisely what kind of browse is best for the animals.

Yet it is obvious that the amount of good forage any range can produce is limited, and therefore the number of deer it will support cannot be increased beyond a

It is obvious that the amount of good forage any range can produce is limited, and the number of deer it will support can not be increased beyond a certain number no matter how solicitously they are protected

certain maximum no matter how solicitously they are protected. Indeed, too much protection may allow them to overrun their food supply and thus actually reduce their numbers in the end. The best thing we can do for the deer is to permit a great deal more hunting. It would eliminate the excess of population each year and leave the remaining deer in a healthier and more thriving condition.

One serious present obstacle to such control is the "buck law," which prohibits the shooting of any deer but full-grown bucks. This measure, though not popular when first adopted, has come to be accepted as part of the sportsman's code. The buck-hunting tradition practically limits the maximum hunters' kill of any herd to about four to nine percent of the population. Yet a dense deer population could withstand a kill of at least 40 percent per year, for this is no more than its natural turnover rate. It might be desirable to shoot an even higher proportion, in order to reduce the population density. Such a principle of limitation is applied by every livestock rancher who is managing his stock for the maximum yield of healthy animals.

To take 40 percent of a deer herd each year would require shooting does and fawns as well as bucks. Consequently game biologists have been trying to convince state game commissions, legislatures and the interested public that the hunting of does and young deer would be in the interests of the deer as well as of the hunters. Considerable progress in this direction has been made: most deer states are now relaxing their rigid protective laws.

A second step in better management of the deer population should be to maintain their ranges in a condition of maximum productivity, consistent with other uses of the land. Forage conditions for the deer can be improved with only slight modifications in forestry practices and in cattle grazing. One of the effective measures is controlled burning of areas in some types of otherwise unproductive forests. The paramount need is to provide the deer with better food. A dollar spent on improving their food supply will often yield far more returns than the same dollar invested in some other form of protection.

As a result of biological research, deer management is evolving rapidly from a legal and quasi-political undertaking to an applied science, comparable to modern forestry or livestock management. A few decades hence the deer kill by hunters should be several times greater than it is today. The controlled and well-fed deer herds will then do much less damage to ranges and crops, and there will still be plenty of deer for the non-hunting public to see.

Leave Wildlife Alone

A HIGH percentage of wild animals and birds picked up in the wilds of our forests and fields eventualy die; even when cared for by experienced persons. Only a small percentage of bird eggs are hatched by amateurs and few of the subsequent chicks survive to maturity.

The best bet is to leave ALL young wildlife and nests alone. Nature has managed to take care of wilderness creatures for a good many centuries and will continue to do so if mankind doesn't meddle.

Mankind wouldn't meddle either if all wildlife were like bears. Few people take abandoned or temporarily lost bear cubs because they know if the mothers should be near, they are in for a rough time.

Virginians are God-blessed in the extent and opportunity for surf fishing.

SURF FISHING in Virginia Waters

By J. J. SHOMON

THERE are many things I enjoy and like doing in the outdoor world but to me the one single pastime which stands out more pronounced than all the rest is surf fishing. Here is a sport that is more than mere fishing, more than mere man and cane pole pitted against the elements of nature. It is more than catching fish, or going fishless as so often is the case. It is more than listening to the pounding sea. It is more than salt spray, wind, sky, sun, the amusing antics of sanderlings. It is more than the agony of catching a sand skate or the glowing thrill of a surging monster channel bass roaring out to sea with your hook and line, and, perhaps your very self.

Actually it is *all* of these things. Like a good symphony it embraces the better parts of each lively movement. Surf fishing, in fact, has often been referred to as the symphony of all saltwater angling, just as delicate trout fishing with the fly is spoken of as the symphony of all freshwater fishing.

Virginians are God-blessed, really, in their abundance and opportunity for surf fishing and I for one, along with others like Winston Montague, Jack Gwathmey, Gilbert Larus, Joe Brooks, am chagrined that more local anglers fail to take advantage of what we have. Take the Eastern Shore country.

Here is a stretch of sea and sand and sky that is unequalled in coastal America—70 long miles of ocean-hugging islands and beaches that go begging for surf fishermen.

True, there is some surf fishing. But the whole of it doesn't amount to very much. Stand on any one of the dozen beautiful beaches of the shore country from Assa-

teague to Fisherman's Island and you'll be lucky to see another fisherman. Cobb, Cedar, and Parramore islands are a bit more frequented, but the rest go begging for humans.

Perhaps this very lack of humanity is what makes the beach country and the fishing so fascinating. Certainly those who like this atmosphere would change for no other and it might be heresy to advocate that surf fishing be anything but a sport of solitude.

But solitude is a relative thing. It all depends on how you look at it. I don't feel lonesome, ever, on a solitary beach. Neither do my friends who have the same bug. The fact is, lonesomeness never enters our minds because there is so much to do, to see, to concentrate on. If you're not baiting up your hook, you're casting your rig into the blue and trying to keep your pants from getting innundated by the surf. Maybe you're absorbed by the birdlife—the sanderlings that play with the washing foam, the black skimmers passing by, the gulls and terns—or the sudden wallowing of porpoises out beyond the breakers. Always, however, there is that solid bit of concentration on the hook and line, that anticipation, that long hoped for pull or strike of a big fish. And when it comes, my friend, you're a different man, believe me, for chances are good if it's ole red he will be hooked solid and then it's off to the races. Then and there you're either man or mouse and your 35-pound or 60-pound channel bass will show you a thing or two.

One of the great thrills of my life was feeling the surge and power of my first channel bass. It was on Cobb Island on Memorial Day of 1954. That was nearly 24 months ago and yet it is one of the most poignant memories of my fishing career.

Six times that bulldog of the sea made for the ocean and each time in final desperation and with bated breath I checked him. Twenty minutes later when his four feet of fighting sinew lay exhausted and panting on the moist sand, I felt an exhilaration both so chilling and perspiring that I didn't know what to do with myself. I actually spun around in circles with jubilation and my behavior was anything but normal.

Such is the thrill that comes with long hope and waiting and anxiety. In one supreme moment you get it and it's worth all the waiting.

But enough on the wonders of it all. More important is that you go and see and experience for yourself. The beaches are there—dozens of them, beautiful, exciting, wild, inviting. They're rough but you can get there and there's a thrill in the going. Get yourself a surf rig, sun glasses and sunburn lotion, boots and plenty of sheddar crabs. Then take to the surf and wait out the channel bass. Long or short though your waiting may be, one thing is certain. You'll not regret going.

Channel bass can be had in the surf if you half way go about it right and go heavy on persistence. Like mastering anything that's difficult, it's the "stick-to-ativeness" that does it—that, and good tackle and bait.

On this score I like the conventional two-piece surf rod measuring 9 to 11½ feet, and made of Tonkin cane or glass. For a reel I prefer a wide free-spooling type that carries a 36-pound test Cortland braided line. With this rig you can cast 4 and 6 ounce pyramid sinkers 100 yards or better. The hook should be a 8/0 or 10/0 O'Shaughnessy with about 12 to 15 inches of steel piano wire as leader. For the best results in the surf, a fish finder attachment should be used with the sinker to give the bait—and the fish when he bites—greater freedom of action.

For baits, any number of morsels may be used: fresh mullet, menhaden, clam, squid, sand eel, sand fleas, conch, and sheddar crab. I'm partial to the latter myself, although sheddars are a little hard to get most of the time. Most Virginia and Carolina anglers go in for mullet because it's more available. If you want bait other than mullet, my advice is: bring your own! You'll not be sorry. Secondly, by all means, keep your bait fresh. Though the drum by nature is a scavenger, he still prefers fresh food.

The best time to fish for channel bass in Virginia is May. April gives a good start and June produces some good catches but the 31 days of May are tops.

As for just where to go and how to get to it, that's up to you. You can't control the weather, so pick a convenient date and go and fish it out come what may—even a northeaster. Drum can be caught even in rough weather. Some of the best jumping off places are Oyster, Wachapreague, Quinby, Onley, and Chincoteague. There you can always hire some local guide or boatman to take you out to one of the islands and pick you up again. Good luck and good fishing!

Correction, please

Our February issue of *Virginia Wildlife* should have carried the following note about Bud Jackson, author of "Wilderness and the Airplane." The piece was written by Mr. Jackson some nine years ago, when he was one of the executives of the Izaak Walton League of America, and *expresses the viewpoint of the League*. Leaving the League's employ in 1949, Mr. Jackson has been serving as Director of Field Activity of the National Wildlife Federation for the past seven years.

"THE NATION BEHAVES WELL IF IT TREATS THE NATURAL RESOURSES AS ASSETS WHICH IT MUST TURN OVER TO THE NEXT GENERATION INCREASED; AND NOT IMPAIRED IN VALUE"

Theodore Roosevelt

What about these

Mechanical Feeders for Quail?

By WILLIAM P. BLACKWELL

Former District Game Biologist

Commission Photo by Kesteloo

A mechanical quail feeder with top removed to show details of construction and simplicity of operation.

FIVE or six years ago the Florida Game Commission began some experiments with mechanical quail feeders on large unimproved pastures in that state. Here is O. Earle Frye, Jr.'s description of those pastures:

"The dominant ground vegetation is wire grass. Second growth Caribbean pine grows sparsely over the entire tract except in a few acres — rarely over three or four — where they are sufficiently abundant to approach a closed type forest. Frequent clumps of saw palmetto provide excellent refuge cover for quail."

In Virginia the nearest thing we have to this type of cover is scrub or other pine, broomsage and blackberry. The size of the units here in Virginia is very small as compared to the large—5,000 to 150,000—pastures in Florida.

Present methods of using feeders in Florida call for one on each 66 acres or 10 feeders per section of 660 acres. They should be placed near good escape cover and near travel lanes so that they are easily accessible to the birds. The most efficient method services feeders once every two or three weeks with visits at greater or lesser intervals as weather and usage by quail, or other factors, may suggest.

Labor to service the feeders represents one of the major costs. In replying to questionnaires feeder operators gave an average annual cost of $6.25 for servicing a feeder for a year. The cost of the feed is, naturally, the other major expense of the operation. Several types of feed have been used successfully in Florida, but cracked corn or poultry scratch feed and hegari (almost the same as our milo) are more commonly used than any others. Again quoting from the questionnaires filled out by the feeder operators, the average annual cost of feeds was $14.60 per feeder for corn or scratch feed and $8.88 for hegari. When the cost of labor is added to that of feed and multiplied by ten feeders per section, it is obvious that this runs into quite a sum.

Frye presents a food habits table showing crop contents from 157 quail killed on the Cecil M. Webb feeder area in Fla. Cracked corn was used in feeders on this area and during the following periods he gave percentage of cracked corn found in the crops of birds killed. From November 23 to 30, it was 79.35 percent; from December 1 to 15, it was 90.13 percent; from December 16 to 31, 88.32 percent; from January 1 to 15, 93.61 percent and from January 1 to February 6, it was 97.75 percent. The average of all these figures is 86.98 percent of the feed consumed by those 157 quail taken from feeders, leaving little doubt that quail do eat from these feeders.

It is essential to protect feeders from cattle and hogs and this must be considered in their construction or installation. Birds other than quail, rats, mice, rabbits, squirrels and groundhogs are important factors in feeder operation since they consume or waste large amounts of feed. However, Frye says there is no evidence that properly situated feeders make quail especially vulnerable to predators.

Though many feeder operators consider restocking essential, the Florida Game Department does not advocate restocking, except possibly in the first year.

Quail populations on the feeder areas in Florida are about twice that of the birds off the area. Twenty-two operators reported their operation highly successful, another 22 said theirs was fairly successful and one reported it too time-consuming and expensive. Three reported failure and three had no opinion. There may have been some bias, since successful persons may have been more willing to answer the questionnaire.

Substantial increases in quail populations as a result of feeders were found on the Management Area and were reported by quail feeder permittees. Census work with bird dogs gave an average fall density of one bird per 5.64 acres on the feeder area as compared to one bird per 9.79 acres on the check area which was similar but without feeders. The fall population averaged 886 birds on the 5,000 acre feeder area and 511 birds on the 5,000 check area, giving an increase of 375 birds on the feeder area. Using the stated labor and feed costs from the Charlotte County Area, the 375 bird increase cost $1,372.80 or $3.66 per bird if hegari is used or $1,787.20 or $4.77 per bird if cracked corn or poultry scratch was used.

The above are maximum costs based on a conservative estimate of the quail population obtained by census with bird dogs, and actual expenditure including more expensive labor than necessary. If we assume that 50 percent of the birds were missed in the census and labor is calculated at $2,400 per year rather than $3,600, and hegari is used altogether, then the total annual cost of the 750 bird increase is $1,152.19 or $1.54 per bird. Although the latter figure is theoretical, it is probably much nearer the actual cost of increasing quail by means of feeders in grazed south Florida flatwoods.

The results of the Florida feeder studies to date indicate that automatic feeders constitute a practical management tool for increasing quail populations where food is the limiting factor and soil, weather and land uses are not suitable for food planting. They are probably of most value and most applicable to areas subject to heavy grazing. *However, with present techniques, the cost of feeder operation is prohibitive for widespread use by game departments to furnish public quail hunting at existing hunting permit rates.*

Mechanical feeders should be placed near good escape cover and near travel lanes so that they are easily accessible to the birds.

Typical unimproved pasture land is an ideal situation for the use of the mechanical feeder.

The principal use of the feeders at present would be limited to private or club projects, since the cost of birds produced by feeders compares favorably with that of birds produced by food plantings, patch farming or other intensive quail management methods. Feeders are of particular value to hunters of moderate means willing to devote a reasonable amount of money and effort to providing themselves with good quail shooting.

In July 1954, 17 Scruggs quail feeders were purchased for trial here in Virginia. Ten of these feeders were put on a 507 acre farm which was heavily stocked with cattle but where it was felt that there was sufficient cover to hold quail if they could be given a fall and winter supply of feed. There had been three coveys of quail on this farm the previous winter. The summer of 1954, however, was one of extreme drought and as a result all cover was very closely grazed including most of the scattered woodlots. Three coveys of quail were found on the farm through the summer, but by October they had left and were not again found until the spring of 1955. It is assumed that even with the addition of a good food supply there was not enough cover on this farm to hold quail.

Three feeders were placed in a 61 acre unimproved pasture field which was growing up to sumac, cedar, dogwood, holly, locust, blackberry and scattered pines, with bluegrass and broomsage making up most of the ground cover. During the fall and winter of 1953-54 there were three coveys of quail that used this field. The drought of 1954 forced cattle to graze the field much more closely than it had been the previous year and as a result no birds were found in it after October 21, 1954. In February this field was cut over with a bush hog which destroyed all ground cover and left only the larger trees that could not be run over by the tractor.

(Continued on page 13)

Madison's Miracle Merkels

By EVERETTE WEAKLEY

All Photos by the Author

Basket of "merkels" collected near the Shenandoah National Park.

ONE spring day several years ago, a little boy near Zesus (Madison County) came running to the house and told his mother, "Look at the old dried peppers I found down by the river bank." To the mother's surprise her son had found a delicious dish for supper. He had gathered "merkels." Merkels, as they are known to people in this section, are really a kind of mushroom. (For convenience some people refer to them as morels.)

The merkel is very common in Madison county in April and early May. They can be found in the mountains, in old apple orchards, and on some river banks. They are especially plentiful in mountains which have been burned over in previous years. For example, the Old Rag Mountain, which burned in 1930, provides a wonderful hunting ground for this fungus. It is not uncommon to find two to three pecks on one visit to this area. Since merkels grow well in burned over areas, years ago Germany found it necessary to pass a law prohibiting the burning of such woodland because so many people were burning wooded areas to provide the proper substratum for merkels to grow.

The merkel is the most delicious of all mushrooms. It is nonpoisonous and very easily identified, even though there are six different species. They are:

(1) M. *conica*	(4) M. *deliciosa*
(2) M. *angusticepi*	(5) M. *hybrida*
(3) M. *crassipes*	(6) M. *esculenta*

To the average person they are all similar enough to be classified as one, since microscopic work is necessary in some instances to determine their botanical classification.

Merkels average four inches in height, with their caps being honeycomblike and varying in color from white to a smokey black. (One such merkel, M. *esculenta*, was found in the park area, reaching a height of eight inches.)

Merkels come from microscopic seed called spores. The honeycomblike cups are lined with billions of spores which are discharged when the proper light is present, thus giving off what looks like a miniature cloud of smoke. In order to realize how small these "seed" are, it would take hundreds to cover the period at the end of this sentence.

The name "merkel" came down to us through Pennsylvanians. Probably since so many people thought that they just pop up as if by *miracle*, the word *merkel* has come to us through generations.

Many people, even today, think they just pop up, since one minute you don't see them, then the next minute you do. But remember nature did a good job in camouflaging plants as well as animals. The merkel probably reaches its complete growth in several days; however, most of this growth occurs under a mass of dry leaves and debris. Since the merkel is usually ¾ covered, it is easy to overlook them unless you have a trained eye. This fungus is usually found after an April shower, since it requires plenty of moisture and warmth.

As for recipes for preparing this delicious dish, they vary from house to house. Whether stuffed with veal, scrambled with eggs, or fried in a cracker or flour batter, merkels are always a delicious dish providing a very high percentage of proteins.

In addition to the food value, there is a possibility that this fungus—like the long-time unknown penicillin—might prove to be a cure for diseases. Who can think of a better prescription from the doctor than "a diet of merkels?"

Unlike other mushrooms, as yet no one has been able to cultivate the merkel. Therefore, they are available for only about six weeks during the year. Merkels are well known in Europe and have been found in a num-

Six different species collected in Madisan Caunty. (Tap left ta right: M. angusticepi; M. crassipes; M. canica.) (Battam left to right: M. esculenta; M. hybrida; and M. deliciasa.)

"Merkel" (8 inches tall) collected in Shenandaah National Park. This is an unusually large specimen. The average is much smaller.

ber of states in the United States. With the mountainous area of Madison county providing such superb substratum and growing conditions, the merkel is the king of the spring fungi.

Armed with a camera and hunting permit the writer located and photographed all six species in the Shenandoah National Park Area; also one species was located on the James River bank near Richmond.

One will find only limited published information on the subject; however, it is more fun to study the merkel in its natural habitat because, just like life, it seems to be a miracle.

MECHANICAL FEEDERS (*Continued from page 11*)

Four feeders were placed in an improved pasture approximately 200 acres in size which had four clumps of trees varying in size from one eighth to three acres. The cattle had access to these pine bluffs and utilized them extensively during the summer months for shade. Feeders were placed in these bluffs in hopes that they would hold the birds through the fall and winter. No quail were known to use this field during the previous fall and winter nor after the installation of feeders. These negative results were expected because of the almost complete eradication of cover in this field by excessive grazing.

During the first year of experimentation with the Scruggs feeders we have had occasional use by quail as was indicated by small amounts of scratching and droppings in the vicinity. Apparently they were not used regularly. Because of extreme drought, however, this was not a typical year, so the results may not be conclusive.

Costs of operating feeders in our experiment amounted to less than the costs in Florida, largely because a smaller amount of feed was consumed. About 51 pounds per feeder were used or wasted by non-game birds, doves, rabbits, squirrels and groundhogs. During the year 868 pounds of feed were used. We used left-over seed from our farm game program and our annual mixture of soy beans, cow peas, milo, rape, Korean lespedeza, millet and buckwheat. Plain milo was used toward the end of the year. The cost of this annual mixture is three or four times that of cracked corn or scratch feed. At 15 cents per pound for the mixture, costs were $130.20, but if we had used the same weight of milo at a cost of three cents a pound, our cost would have been $26.04 or, with scratch feed at four cents would have been $36.72.

Since relatively little feed was eaten from our feeders they were serviced only nine times during the year. It took seven hours to service the seventeen feeders, and assigning a cost of 75 cents per hour this would give us an annual cost of $47.25 for labor. Adding the cost of the feed we would get $26.04 per mile plus $47.25 or a total cost for the year of $73.29.

When investigating some new tool or technique like these feeders we often expect a panacea or cure-all for our game management problems. Needless to say, this is seldom realized. A certain amount of cover is always necessary in conjunction with food if we are going to find the area used by quail.

An often overlooked fact of the Florida investigation is that quail use the feeders most during the period January 1-September 30. Florida feels that they are most important prior to and during the breeding season and help obtain bigger clutches of eggs with higher average fertility and hatchability. Use of feeders during the summer by both young and adult birds is very heavy in Florida.

Feeders are undoubtedly another valuable tool of game management but they will not produce miracles. To know their limitations is to avoid disappointment.

Blue Ridge Parkway during May azalea time.

Panoramic beauty looking

Williamsburg, the Rockefeller-restored early capitol of Virginia is quaint, quiet, historically colorful.

The capitol of Richmond was designed by Thomas J

Virginia th

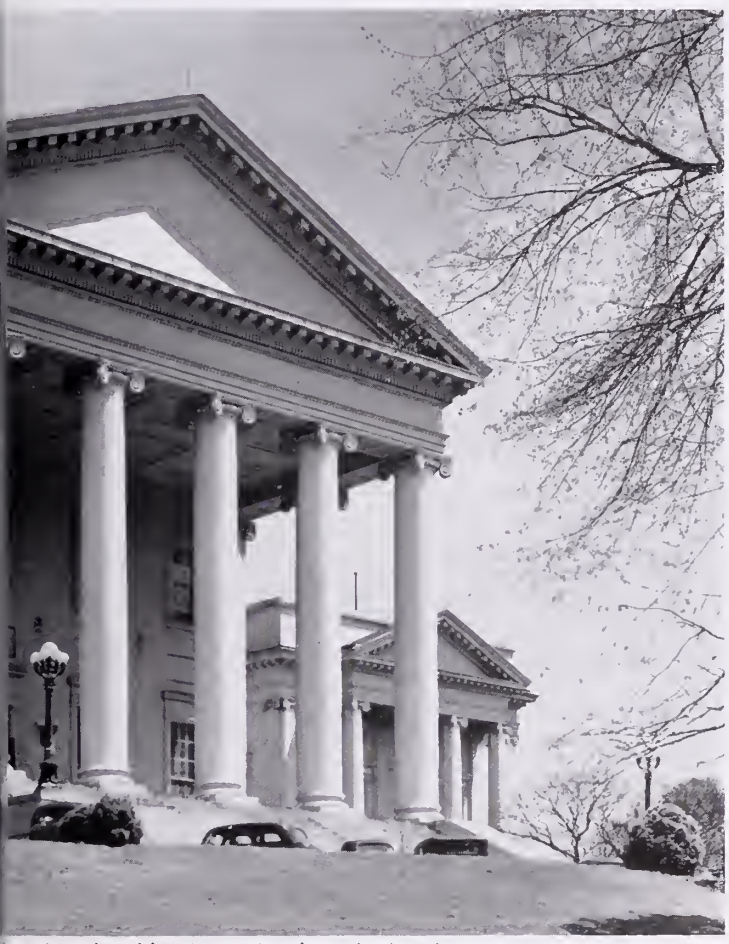
"The beauty of Virginian landscapes, plant
sociation between a certain kind of nature a

Yorktown. Here on the banks of the beautiful York River the Revolutionary War ended.

Jamestown on the James. It was here that English-speaking America was born in 1607.

n from Bent Mountain.

The Breaks of the Cumberland in Dickenson County.



on. It is the oldest in continual use in America.

Natural Bridge in the Shenandoah Valley — one of the great natural wonders of the world.

V. C. C. Photos by Flournoy

Beautiful

s and towns is the product of a long as-
certain kind of people." — Jean Gottmann

Virginia Beach and the fabulous surf. The state has 1500 miles of salt water shores.

Virginia's beauty is not restricted to homes, lands and waters. Girl on right was Miss Virginia in 1955.

The Ruffed Grouse —

NATURE'S KETTLEDRUMMER

By DAN E. CANTNER

Special Services Officer

Pennsylvania Game Commission Photos

PEOPLE know him by several names: partridge, tippet, white-flesher, drumming-grouse, pheasant, red tail, long-tailed grouse, bad bird and kettledrummer. He is a favorite target of the more rugged upland game hunter and his delicious white meat is a crowning touch to any meal.

No doubt the scientific name, *Bonasa umbellus*, was derived from his two distinguishing characteristics, the ruff of his neck and the drumming sound he produces with his wings. *Bonasa*, Latin for Bison, reflects both the impetus character of flight, which is similar to the head long charge of a buffalo, and the drumming, which is similar to the sound made by a moving herd. *Umbellus* refers to the feathers of the neck which flare out much like an umbrella.

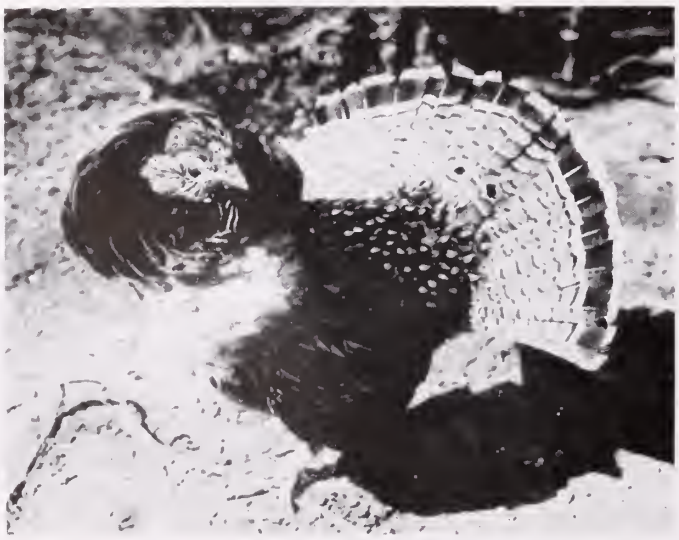
The characteristic drumming of the male usually ushers in the mating period which runs from April to late July. Several theories have been advanced in connection with the drumming. Some say it is to attract a mate; others claim it is to drive worms and insects out of logs. Still others believe it is just a characteristic of the grouse and has no apparent use to the bird. The first theory seems more logical although I have heard grouse drum late in December when the mating period was nearly three months away.

Strictly a woodland dweller and content in the mountains, the grouse—like most game species—prefers a variety of vegetative cover. Second growth hardwood forests with many openings and mixed with conifers is ideal home for him. Thick patches of rhododendron, mountain laurel and hemlock also attract him, especially during bad weather.

The sudden explosion of a grouse taking flight startles even the experienced hunter. His wings are short, broad and capable of fast bursts of speed. Short flights are characteristic and seldom exceed 100 yards although flights of over one-half mile have been recorded. A flight speed of 50 miles per hour has been clocked for the bird in open country, although it seldom exceeds 30 miles per hour in wooded areas. The grouse tires easily and could be "run down" if quickly flushed after each flight.

When spring arrives, the grouse tells the world that he is part of nature. As the last traces of snow leave the mountains and the warm air slips into the valleys, nature suddenly becomes particularly alive. So does Mr. Grouse.

Old kettledrum has just put away a meal of blueberry buds, wintergreen leaves, rose hips, greenbriar berries and tender young grass blades from a small forest opening. Fruits or seeds of dogwood, grape, wintergreen,



A grouse showing the typical ruffed neck and spread tail that is characteristic of this fine game bird.

During the breeding season fighting is common among the males. The cock-bird vigorously protects the territory around the drumming log.

The incubation period is 23 or 24 days. Note the almost perfect camouflage of this grouse hen with the leaves.

Average clutches contain from 7 to 14 eggs. The young chicks are precocious and are capable of traveling right after they hatch.

greenbriar, sumac and oak, laurel leaves and the buds of cherry, birch, maple and blueberry comprise the bulk of his winter diet, to be replaced by young tender plants, early fruits and insects.

Feeling the effects of spring and a desire to share his feelings, Mr. Grouse looks for an old dead chestnut log. After a brief pause to check possible danger, he hops upon the log and soon begins his strange ritual.

A nearby yearling hen has been hearing the drumming for several days, but until now has paid little attention to it. Suddenly it strikes a different chord and draws her to investigate the sound. Approaching the drumming log, she gazes upon a magnificent sight, a beautiful mate of her kind, neck ruffed, tail spread, performing a dance of love that becomes irresistible.

On the way back to her home range the mated hen starts looking for a place to raise her family. The final location is the base of a large oak not too far from a small opening in the forest. It is only a small depression, approximately eight inches across and is carefully lined with leaves. It will serve as home for her eggs for the next few weeks.

One week passes after she meets the beautiful grouse at the drumming log. She now lays her first egg. Other eggs follow at intervals of about a day and a half. After two weeks of laying, 10 eggs fill the small nest. Incubation will now occupy most of her time. With the exception of 20 or 30 minutes a day devoted to eating and eliminating body wastes, the female will not leave her eggs unless frightened or attacked by enemies.

The 24th morning is a miserable one. A cold spring rain is falling and everything is sodden. There has been movement in the eggs all through the night. The young grouse are starting to hatch.

Around 11 o'clock the clouds begin to scatter and the sun breaks through the overcast. It is a welcome sight to the mother concerned about her brood. By two that afternoon the air has warmed sufficiently for her and the chicks to leave the nest. Were this a human family, the mother would be concerned about the abandoned home. Two eggs remain intact and one of the newly hatched young is unable to move because of getting wet and chilled during the cold rain. If she remained on the nest perhaps the other two eggs would hatch. Her immediate concern, however, is for the young chicks huddled closely beneath her.

The seven healthy young and their mother leave the nest. Progress is slow for the baby chicks tire easily. The following morning finds them in a clearing and the young birds are busy catching insects. The grouse is a precocious bird and capable of eating and walking immediately after hatching.

A few days later the mother leads the young ones out of the woods across a dirt road to an abandoned field where insects should be abundant and supply the young with the protein their bodies need. Before entering the field mother decides to let the brood dust at the edge of the road. But this morning a fast pickup truck barely misses the mother and runs over two of the stragglers. The remaining five chicks proceed to the field and enjoy the morning meal.

When the little grouse reach the age of three weeks they become very good flyers. This is of considerable importance to them because now they can easily escape predators which lurk in the forest. They also have an added advantage in running down the more elusive winged insects.

Six weeks after hatching the juvenile plumage is developed sufficiently to allow the young birds more freedom from their mother. They can now maintain sufficient body heat under normal weather conditions and do not need brooding as in the past. The family now roosts in hemlocks and other low conifers away from ground dwelling, nocturnal predators.

The chicks are beginning to feel ambitious and playful. The warning cries from their mother are not taken as seriously as in the past. One evening, while looking for a place to roost, a fox suddenly appears on the forest

trail. The mother utters a warning cry and immediately starts off away from the fox, one wing hanging limply at her side. Two of the chicks are in a squabble over a wiggling worm and do not heed the alarm. The fox, in pursuit of the seemingly crippled mother, suddenly shifts his attention to the two chicks. The one nearest him is not quite fast enough, but the other escapes to a nearby tree.

The remaining four birds survive the rest of the summer, although they have several narrow escapes, one from a Cooper's hawk with a taste for grouse.

Food is no problem to the family during the summer months. Nature provides large amounts of blueberries, strawberries, raspberries, grasses, sedges and other green materials. Insects make up almost one half of the diet of the growing youngsters during this period. They are gradually becoming accustomed to a diet similar to their mother's. By August insects make up only about five percent of the birds' nourishment.

Mid-September finds the grouse with their first adult plumage. The family tie is relaxed and now it seems to be every bird for itself. Frequent quarrels occur among the young and they have little use for each other any more. Some of the grouse become so infuriated that they fly off as if half crazy. A juvenile male, on one of these crazy flights, fails to clear a group of power lines and his neck is broken by the impact.

The remaining three birds are on their own. Of the nine birds, including the father, in the original family group, only five are left as the hunting season approaches.

Mid-November finds the grouse beginning to feed heavily on buds once more since other foods are becoming scarce. They will continue to utilize haws, acorns, wild grapes, cherries and other fruits and nuts as long as they are available.

One crisp morning late in November a new sound rocks the valleys. The young birds have never heard gunfire before. It sounds rather close. The father of the group has heard it many times before and he is wise to the ways of hunters. However, on this particular morning, he does not see or hear the second man of the party. A clumsy bird dog crashes headlong through the tree-lap in which he is hiding. He bursts into the air with a tremendous roar. A medium-sized oak nearby gives him protection as he flies directly away from the first hunter. The second gunner is in a better position. His first shot blasts away a chunk of bark from the side of another oak. His second shot, as the grouse passes through a small clearing, is on the mark and proves fatal. The three remaining young grouse and the mother are startled as the men tramp through the woods. One of the birds of the year is near a small stream where she has flown for water. Suddenly the bird dog looms up from the laurel thicket. He walks stiff-legged and advances slowly towards her. She immediately runs into the laurel and crouches low. The dog carefully follows to within 15 feet and is now staring directly at her. She runs a few feet and stops. He is still close behind. In a tremendous roar she is airborne and heads for the ridgetop to her left. Just before she crosses the ridge one of the hunters fires. A searing pain tears through her left wing. A number 6 shot has broken the bone. Her momentum carries her across the ridge and out of sight. The hunter does not realize he has hit the grouse.

That evening after the hunters leave, snow begins to fall. The fluffy whiteness continues all through the night and ends only the next afternoon. Small ravines are drifted with snow and food is scarce. The grouse are eating buds from trees and bushes that are above the snow. That night it becomes extremely cold. Some of the grouse work their way down into the snow at roosting time. The snow acts as an insulator to keep them warm. The next evening the weather warms and the birds again roost in the hemlocks. This rise in temperature is just enough for a heavy fall of sleet. Buds are now coated with ice and food is not available. The wing-shot grouse dies of exposure and lack of nourishment during the three days of bad weather which follow. Some crippled grouse are lost to predators and weather in this manner. Only the mother and two offspring now represent the family group.

The cycle of the seasons is complete. Nature and man have taken their toll. As spring returns to the forest, drumming can again be heard in the vicinity of the old chestnut log. Another grouse has replaced old kettledrum in this great outdoor drama. As William Cullen Bryant has expressed it in his poem:

> Hearest thou that bird?
> I list'ned, and from 'midst the depths of woods,
> Heard the signal of the grouse,
> A sound like distant thunder;
> Slow the strokes at first, then faster and faster
> 'Till at length they passed into a murmur
> and were still.

Folklore of Snakes

"There is a great deal of popular misinformation about snakes that borders upon folklore. Thus it is widely believed, *but certainly not true,* that all snakes are poisonous; that snakes are "slimy"; that they "sting" with their tongues; that the killing of a snake will be avenged by its mate; that the age of a rattlesnake in years corresponds to the number of rattles; that snakes "charm" their prey; that whiskey is a cure for snake bite, and so on.

These are a few; there is a host of other beliefs about snakes.

Field Book of Snakes
by Karl P. Schmidt and D. Dwight Davis.

A view from the fire tower on Reddish Knob.

Reddish Knob — Roadway to the Sky

By MAX CARPENTER

Special Services Officer

VCGF Photos by Kesteloo

VIRGINIA'S Allegheny mountain country has long been a traveler's delight. A favorite Sunday drive for residents of the Shenandoah Valley is the ascent up Shenandoah Mountain—a climb in the protected wilderness of the George Washington National Forest that's refreshing and inspiring, but an experience too few people realize could be theirs. The winding road takes you into the sky, quite often through the middle of a cloud and brings you finally to its lofty summit, *Reddish Knob*. A 50-foot tower on the highest peak in the range is approachable by car and affords a view that is breathtaking on clear days. Familiar landmarks 3,000 feet below and 20 miles away on the floor of the valley are easily recognized.

The 115-mile circuit in the North River country from Harrisonburg on up to the Shenandoah picnic area by way of Reddish Knob and back through Stokesville is the best place in that part of the state to chance upon game of many kinds. Deer, bear, turkeys, and bobcats roam at will, often wandering along or across the roadway as you travel upward.

The best way to reach the fire tower from Harrisonburg is to go south to Dayton on route 42, turn right on the Ottobine Pike (257), and follow this winding road through Ottobine, on to the top of Shenandoah Mountain. At the top, before entering West Virginia, turn sharply to the left and follow the gravel road until you sight the tower—a fire lookout station which is open (on the platform around the cabin) for tourists to view the ridges and valleys below. Occasionally bird people use the tower to watch for migrating hawks which follow the crest of the mountain on their journey south. Within a few hours, it is easy to see several hundred hawks of various kinds, plus song birds and even monarch butterflies on days when these creatures are moving.

Many of the roads in the forest are designated forest development roads; however, the more important are called *forest highways*. These are the roads that serve as farm-to-market, interstate and inter-community thoroughfares. The road up the mountain—forest highway No. 5 and known locally as the "branch road"—is an important interstate and farm-to-market route connecting the Shenandoah Valley of Virginia with West Virginia. Formerly dirt and then gravel, it was black topped in 1953 to facilitate better traffic. The "branch hollow" across to the right into Hone Quarry hollow is famous for its plentiful supply of bear, deer, turkey and grouse. This is the area of Rockingham and Augusta counties where the majority of the bear in Virginia are killed.

Shortly after the main ascent is begun, the Reddish Knob fire tower can be seen in the distance. As you climb the mountain, you can see long scars on the back side of Timber Ridge, made during the 16-inch rain that caused the flood of 1949 at Stokesville and Bridgewater. So much water fell in such a short time that rocks, soil and trees were washed down the entire length of the ridges, cutting deep barren gullies still visible today. Near the top at Briery Branch Gap is a grave marker on the left side of the road, noting where young Samuel Curry met his death by freezing two nights before Christmas of 1922 in an attempt to cross the mountain during a severe snowstorm from Sugar Grove, West Virginia, to his home at Briery Branch.

As you reach the top and look north from the tower along the main ridge toward Slate Springs interesting patches of balsam fir catch your eye. These were planted around 1925 to reforest grazed areas and to allow a check to be made on their growth and survival at this elevation. Two miles beyond the tower you pass through a dense stand of dwarf table mountain pine—mature trees barely averaging 6 inches in diameter and 15 feet high. They are dwarfs because of the rugged terrain, poor soil, and strong winds that whip the ridges. Nearby is a ridge the local people call "God's Pulpit"—a quaint name derived from the legend that it was from this promontory that God spoke to the early settlers in the valley.

Reddish Knob ridge is the dividing line between the states of Virginia and West Virginia.

Typical wooded terrain in the North River country of the Alleghany Mountain Range.

Seven miles southward on the Virginia—West Virginia line is North River Gap, another famous hunting area—the North River country. Here the road makes a "T" where it meets Forest Road 95. The area is marked by a North River game management unit sign and other signs put up to explain different locations and management practices conducted by the Forest Service and State Game Commission. A short distance from the road junction is a natural stand of white pine approximately 65 years old with an average height of 90 feet. Old timers will tell you that 70 years ago this was a grazed field.

This road skirts the 7000-acre North River Game Refuge used primarily for wildlife management studies by the Commission of Game and Inland Fisheries and one of the two remaining state refuges on the forest. The refuge was opened to limited bow hunting during the last two seasons and many archers took advantage of hunting in the protected area.

Forest protection road 95-A, which branches off to the left, has been seeded to provide food for wildlife, and small ponds built to provide water during the dry months. Not far from the road some graves of early settlers still remain—their tombstones no more than unlettered slabs of red sandstone buried on edge in the ground.

The Shiflett Place Plantation is marked by a sign. Here one hundred acres of old farm fields were planted in mixed conifers from 1929 to 1932 for the protection of the watersheds that feed the reservoir for the city of Staunton. Now future sawtimber trees are pruned to produce better lumber and the poorer crowded trees are sold for pulpwood.

A deer exclosure sign marks where browse studies have been made. A small area, fenced to keep deer out, serves as a check area to determine how heavy the browse is on the surrounding trees and shrubs.

Near the end of your Shenandoah Mountain drive, called the Reddish Knob Loop, follow Forest Road 95 to the Girl Scouts' Camp May Flather and turn left onto Forest Road 101, which eventually brings you out on the Briery Branch road to the point at the foot of the mountain where you started.

As you leave Shenandoah Mountain heading for home and tally up what you've seen—a hen turkey with her brood, chipmunks, squirrels, birds or maybe deer—it amounts to a thoroughly enjoyed afternoon in an atmosphere of scenic natural beauty not found anywhere else in Virginia.

FISHING IN THE ARGENTINE

(Editor's note: Many Virginians will remember world champion fly caster Joe Brooks' appearance at the Richmond Sportsmen's Show March 14 - 18. Well known in Virginia, Joe Brooks was a frequent visitor to the Game Commission's exhibit, and talked to many about his recent Argentine experiences with Lou Klewer of the Toledo Blade. Thinking many would be interested in what Mr. Brooks spoke about and what Mr. Klewer put down on paper, we are running this short piece on the wonderful fishing they found in that fabulous country.)

THERE is a Spanish word used quite commonly down in the Argentine - the word "fantastico" - and it probably should be used when describing the trip taken by Joe Brooks of Islamorada and the writer to the Republic of Argentina for fishing and bird study, a trip that took us down to the town of Ushaia, the most southern town in the world, about 50 miles north of Cape Horn. When it comes to fishing, there are few better trout streams in the world than one finds in the Argentine, and if the fish that were taken on this trip — rainbow and brown trout, landlocked salmon and Argentine perch — are any indication, it's a Paradise for the fly rod man or the man who wants to take a bigger fish than his neighbor.

The fish - the prize ones - included 10 ½ lb. rainbows, 14 ½ lb. browns, 12 ½ landlocked salmon and 4 lb. Argentine Perch, all fish that were worth posing with for that picture one always wants to hang up in the den.

Yet it wasn't all fishing, for Brooks was also doing a survey of the national parks of Argentina under commission from Luis Ortiz Basualdo, general administrator of the National Parks of the country. I was especially interested in the bird life of the country, and it was such that I added more than 60 new species of birds to my all time life list, including four new geese, a new swan, the cascarobas, parrots, rheas, Paraguyan snipe, woodcock, about 10 new species of ducks and many others.

We left Miami January 29 and returned to Miami on March 8, concentrating our fishing in two places, Tierra del Fuego, south of the Straits of Magellan and around Junin de los Andes, a small town about 1100 miles southwest of Buenos Aires, just a short distance from the Chilean border.

Tierra del Fuego, with its big sea run brown trout and its great number of rainbows and browns, its fabulous bird life where you find flamingoes and penquins, hummingbirds and Cape Horn wrens, parrots and kelp geese all on the same island, its treeless sheep country, its false beech woods and its rugged mountains is really a fantastic country.

We were guests of Carlos Menendez, owner of the Estancia Maria Behety, a 250,000 acre ranch harboring more than 100,000 sheep in addition to some cattle and magnificent horses and for 10 days fished such fabulous streams as the Rio Granie, the McLennin, Menendez and others with Joe taking the biggest trout, a 12 ½ lb. sea run brown; but there were plenty of five, six, seven and eight pounders as well. Anything under four pounds was tossed back. The Rio Gallegos, just north of the Straits of Magellan, also provided some spectacular fishing with sea run browns being taken better than 10 lbs. and plenty of smaller fish too, all on fly rods.

After Tierra del Fuego we flew back to Buenos Aires and then down to San Carlos Baroloche, about 125 miles from Junin de los Andes, completing our trip to Junin by car. From there we fished in all directions, the Rio Chimuhuin, where Joe took his 14½ brown and last year caught an 18½ brown out of the same pool, the Callon Cura, the Quilquehue, the Mallau, and the Rio Traful among others. On the Traful, the first day Joe took 14 landlocked salmon ranging from 6 to 10½ lbs.

At Junin de los Andes we stayed at the Hosteria Chimuhuin, a really fantastic place. Twenty days for $22 American including three meals a day plus the wine at your meals. It is really a fishing hotel for all guests were fishermen including Prince Charles Radziwill of Poland, Count Andre DeGonay of Paris, Luis Duggan, Argentina's greatest polo player, Jose Anchorena, former Argentine golf champion and our close friend, Jorge Donovan, OWAA's newest member and most southern one, and a host of other exceptional and hospitable people. It will take many columns and many articles before the trip is fully told, but it was the greatest trip I ever had in my life and I doubt whether Joe had many that were any better.

CAPTAIN CHARLES H. HOPKINS DIES

We note with profound sympathy and regret the recent death of Charles H. Hopkins, Director of Conservation for the Olin Mathieson Chemical Corporation. With the company for 22 years, he was responsible for the Western-Winchester game restoration plan of improving privately owned farm lands for wildlife production. He was a noted conservationist, ranked among the nation's foremost experts in this field, and in 1951 was honored by the state of Illinois as "Conservationist Number One." A qualified pistol and rifle expert, he was the author of a handbook used by the Army Air Force as a training text in aerial gunnery. All interested in wildlife, as well as his many friends, will mourn his passing.

Commission Photo by Kesteloo

With a constantly increasing population and more fishing pressure, modern trout fishing necessarily must be largely artificial in Virginia.

A Sober Look at

Virginia's Trout Program

By T. D. WATKINS

Commissioner from the Third District

BY the time you get this issue of *Virginia Wildlife* the spring trout fishing fever will be nearing the breaking point. Twelve noon, May 1, will be only a few days away. As always in the past there will be lots of nice fish to catch. The Virginia Game Commission hatchery workers will have finally completed stocking some 140 trout streams with beautiful two-year old brooks and rainbows and will have breathed a sigh of relief only to have law enforcement officers view opening day with added apprehension. Big trout are tempting fish and many is the sly angler who would like to grab his creel load before the big day opens.

So there are days, hours, of watchful waiting, patrol work by day and night, and, finally, the fateful noon hour comes.

For a while it's sort of fun for the thousands who flock to the streams to get their seeming share of choice fish but then, just as suddenly, the pressure wanes, the fish are caught or put down and comes the sober realization that the best trout fishing comes after the crowds leave. Then the serious angler can visit his favorite stream, take it easy, pause and reflect and do the kind of trout fishing that the sport was meant to be.

If you're one of those who likes to trout fish, as I do, it might be well to think about this trout program, where we're heading, what we're doing, the costs, and see where it is good and where it is weak.

Certainly what we're having today is not trout fishing. Far from it. It is the very antithesis of what trout angling should be. But then again, we have to realize that with increased population and fishing pressure, modern trout fishing necessarily must be largely artificial. In Virginia where our streams don't lend themselves to any significant carryovers of trout because of low streams in the summer, it is largely a put and take proposition, that or nothing else. True, there are some native trout but the

supply is limited and cannot be expected to provide enough sport for the thousands who like to trout fish.

So the Commission, recognizing the dilemma long ago, began a program of trout raising and planting to give the fishermen something more than a few native trout. Starting in the late twenties and the early thirties, the trout program began and grew. By the early 40's around 100,000 year-old trout were being planted annually, only to have the sportsmen begging for bigger fish. A decade later a program of raising only two-year fish was instituted with poundage increased.

During the past five years a total of 1,334,085 trout were produced at the Commission's three rearing locations—Marion and Buller hatcheries in Smyth County, and the Montebello Nursery in Nelson County—at a cost of $530,678 or an average cost of 40 cents per fish. Now suppose you are a lucky fisherman on opening day and take your eight trout, the creel limit. How much did those trout cost? Eight times 40 is $3.20—but this isn't the full true story. The 40 cents covers production costs at the hatchery and not the creel costs. We must not forget that many fish planted do not reach the fisherman's creel since some losses occur, such as poaching, loss due to predators, high water, etc. We can safely add another 10 cents to each trout, making the total 50 cents a fish.

Now, who pays for this? The fisherman, all fishermen, of course, but how and in what proportion? How many trout will the $1.00 county hunting and fishing license buy? Or the statewide $3.00 fishing license?

Let's say, for discussion, that you're an opening day fisherman. You were lucky and you took your creel limit of eight trout. How much did they cost and who paid the bill? Are you a county hunter and fisherman with only a $1.00 county license, or are you a statewide $3.00 fisherman? Are you fishing on national forest land? It makes a difference.

Well, we can't cover all these things in one discussion. Certainly, however, we should take time out to soberly reflect on all this and look at the program seriously.

For the time being just let's think about two things: what are we trying to achieve in our trout program and, secondly, shall we try to make the program pay for itself, and, by whom?

Many states have faced these problems. We too must face the facts sooner or later in Virginia. They will be sober facts, some of them, and we may have to swallow some bitter pills. But bitter or sweet, we should be willing to look at the program objectively. Let's try to answer such things as *purpose of the program, costs* and, *how we can improve the whole program.* It can be improved.

Next month we'll discuss costs in more detail and will bring up the matter of a separate trout license, to be followed by such discussions as what our biologists are finding out and how we can have more fun, more sport and better trout fishing.

A *better trout program* is possible if we are willing to face facts and are willing to do something about it. Certainly the opening rush to our trout streams to collect 8 or 4 or 2 or maybe no trout, as the case may be, is not trout fishing as it should or could be.

These and many other questions are worth airing. They are worth discussing fully. Let's take time then and look at our trout program soberly. More next month.

Shenandoah Park Trout Season, May 1 - Sept. 10

THE long hoped for fishing days in Virginia's Shenandoah National Park will again become a reality. The waters of the park, with certain restrictions, will be open to trout fishermen on May 1 for the first time in three years.

Fishing at the national park near Luray was prohibited during the past two years because of the disastrous effects of floods and droughts on the fishery resource during 1952, 1953 and 1954.

Superintendent Guy D. Edwards has cautioned fishermen that restoration of trout to the Shenandoah waters has just begun and several favorable years will be required for the fishery to return to its former level of productivity.

For this reason a few restrictions have been placed upon the fishing. The season will extend from May 1 through September 10 to conform with the Virginia season on trout. Fishing will be limited to artificial lures only with spinners and other lures limited to one hook.

The possession limit shall be eight fish per day and all trout retained must be not less than nine inches in length.

The decision to reopen the streams was based on the results of the studies of the United States Fish and Wildlife Service. Observations during 1955 revealed substantial improvements in the numbers of trout in most streams. Favorable water conditions in the spring of 1955 permitted the hatching and survival of good numbers of trout.

The numbers of adult trout in the streams are still small. Restoration of the trout resources through natural reproduction will depend upon them until the young fish grow to maturity. Thus, the minimum size restriction has been set at nine inches to protect a larger proportion of adult fish and guarantee them an opportunity to spawn once or twice before reaching legal size.

It has been shown in experiments that only 5 to 10 percent of fly-hooked fish die from hooking and handling. Eighty to ninety percent of bait-hooked fish succumb to injuries.

Fishing for all other types of fish in the park is prohibited. No special park license is required, but persons fishing within the park must first procure an appropriate fishing license issued by the state of Virginia.

Observance of Wildlife Week In Virginia

E. Floyd Yates, of Powhatan, who is president of the Virginia Wildlife Federation, presents Governor Stanley with a painting of waterfowl in recognition of his part in promoting the observance of Wildlife Week in Virginia this year. J. J. Shomon, chief of the Education Division of the Commission and chairman of Wildlife Week in Virginia, is looking on as the presentation is made.

Commission Photo by Kesteloo

Governor Stanley (left) receives waterfowl painting from E. Floyd Yates, president of the Virginia Wildlife Federation. J. J. Shomon, chairman of Wildlife Week in Virginia, helps with the presentation.

Education Staff Member Becomes Richmond Public Relations Director

Mrs. Dorothy Ulrich Troubetzkoy, who has been in the Publicity and Publications Section of the Education Division since August 1953, has resigned from the Commission to take the newly created position of Information and Research Officer for the City of Richmond.

In her new position, Mrs. Troubetzkoy will coordinate newspaper, magazine, radio and TV publicity, do research for the speeches of the City Manager and department heads, help formulate public relations programs for various agencies and prepare the annual report.

Mrs. Troubetzkoy did her undergraduate work at Vassar and the University of Chicago, graduate study at Columbia and Cornell. Her prose and poetry have been published in many national magazines and major newspapers and she has won numerous national and regional awards for her writing. She was a columnist of the Richmond "Times-Dispatch" for five years and served as first regular art critic of that paper.

Commission Completes New Film

The latest motion picture film, in sound and color, to be produced by the Commission of Game and Inland Fisheries, is "Wings Over The Salt Marshes," the story of shore and seabirds on the Eastern Shore of Virginia. Commission Photographer Leon G. Kesteloo did the film sequence and J. J. Shomon, chief of the Education Division, prepared the script.

This film, which runs about 13½ minutes, is suitable for showing to civic clubs, sportsmen's associations and similar organizations. It is available for such groups within the state from the Commission's Audio-Visual Section, 7 North Second Street, Richmond 13, Virginia.

Overcomes Handicap to Hunting

Special Services Officer Max Carpenter has sent us a story which proves that a disabled person need not give up his favorite sport of hunting, even if crutches are his only means of locomotion.

James McDonald, of Toms Brook, is an electrical engineer by profession. He had polio when he was young and lost one leg in 1941 while serving in the U. S. Navy. He holds a patent on an interesting underwater gun he developed for the Navy during the war.

Not willing to give up hunting after he lost his leg, McDonald once carried his gun along the side of his crutch. Then someone suggested strapping the gun to the crutch. That gave him the idea of building his gun into his crutch, which called for considerable imagination.

As the picture shows, some variations had to be made on the crutch to hold the 8 mm gun so it could be raised to aim without having the crutch slip from under the arm.

James McDonald demonstrates his ingenious fire arm built with a crutch for a gun stock.

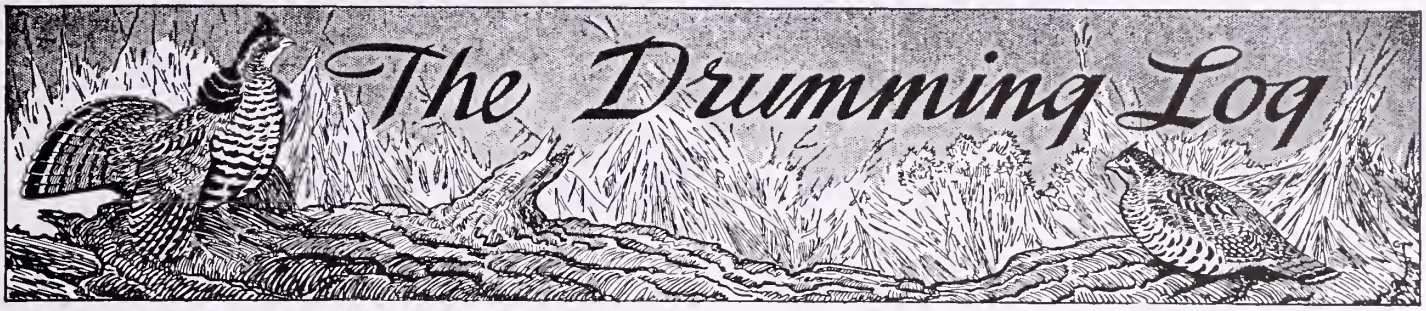
Middleburg Community Center Donates Virginia Wildlife

The Middleburg Community Center has supplied supplementary educational materials to area schools during the past year. Among these materials were subscriptions to *Virginia Wildlife* for the Bealton School and the Warrenton High School and copies of the Commission booklets, "Birdlife of Virginia" and "Freshwater Fishing and Fishlife in Virginia."

Nutria Can Become A Nuisance

Howard Dogen, Executive Secretary of the Texas Game and Fish Commission, warns people interested in propagating nutria as a means of controlling aquatic vegetation that the large rat-like animal has sometimes helped, but often become a nuisance. Residents of Eagle Lake have had their farm fields raided and their duck blinds torn down. Three females and two male nutria were released in the lake six years ago. Now more than 2,000 have been killed in an attempt to control the animals.

Nutria were stocked experimentally some years ago in North Carolina and occasionally one of the animals is seen in our own Back Bay area.



Wildlife Conservation Stamp to be Issued

The first of three stamps to emphasize the importance of wildlife conservation will be released at Fond du Lac, Wisconsin, on May 5th. The special 3-cent stamp, bearing a wild turkey design by Bob Hines, will be placed on first-day sale in connection with the convention of the Wisconsin Federation of Stamp Clubs. The color of the stamp has not yet been announced.

Stamp collectors desiring first day cancellations of the wild turkey stamp may send a reasonable number of addressed envelopes to the Postmaster, Fond du Lac, with money order remittance to cover the cost of the stamp to be affixed. An enclosure of medium weight should be placed in each envelope and the flap either sealed or turned in. The outside envelope to the postmaster should be endorsed "First Day Covers."

The wild turkey, a native of Virginia, will be featured an the initial wildlife conservation stamp.

Good News for Bass Fishermen

In addition to all year 'round bass fishing east of the Blue Ridge, except in streams stocked with trout, the bass season west of the Blue Ridge has been extended to April 30th.

The creel limit remains as it has been, for large and smallmouth, black bass and spotted bass, at 8 a day in the aggregate. Fishermen may take 25 each day of white bass, a species found only in southwestern Virginia waters.

There is no size limit on bass. All bass may be kept and counted as part of the daily creel.

Dan Cantner, Special Services Officer eastern Virginia, halds meeting with Manipulate 4-H Club. Pictured fram left ta right: Jeanette De Larme, president; Lucille Landers, Juniar leader; Dan Cantner; and Mary Lau Whitehead, program chairman.

Soil Bank Bill Based on Comprehensive Conservation Policy

The Senate Committee on Agriculture voted on February 9th to approve a bill "to provide an improved farm income." Committee Chairman Allen J. Ellender, of Louisiana reported it to the Senate on the following day and the measure was numbered S. 3183.

Principal new feature is a "Soil Bank Act" whose goal is "to protect and increase farm income, to protect the national soil, water, forest and wildlife resources from waste and depletion, to protect . . . commerce from the burdens of excessive supplies of agricultural commodities, and to provide for the conservation of such resources and an adequate, balanced and orderly flow of such agricultural commodities in interstate and foreign commerce."

Conservationists across the continent are pleased that the basic authorizing language of the bill is broad enough to include forestry and wildlife, paving the way for a conservation program authentically comprehensive. Some of the earlier "soil bank" bills had confined their proposed benefits to soil and water resources only.

Number One Federal Game Law Enforcement Officer in Virginia

"Buck" Rodgers, of Cheatham Annex, is the proud wearer of Federal Game Law Enforcement Officer badge Number One. There are only two other such officers in the United States, in McAllister, Oklahoma, and Hawthorne, Nevada. All are under the Navy Department.

The personnel stationed at Cheatham Annex are extremely interested in the scientific management of their fish and game resources. They are doing everything possible to improve conditions of their waters, fields and woods to encourage all species of fish and game.

Colorado's New Educational Coordinator

Notable experiment is establishment by the Colorado Game and Fish Department of a position of Educational Coordinator to work directly with the Colorado school systems. He will be under the direct supervision of the State Department of Education and will work toward the development of conservation education within the curriculum.

The position was set up at a propitious time, for Colorado is revamping its entire school curriculum and there should be more emphasis on conservation in the new system.

open-space values in the face of expanding populations and intensifying land-use.

Game Protector Saves Litterbug Victim

It's a lucky thing for one little skunk in Pennsylvania that Game Protector B. A. Dasher lives up to his name and has a good pitching arm. Dasher was driving along the highway when he was startled to see a skunk wearing a glass mask cross in front of his auto.

A second look showed that the skunk was wearing a glass baby food jar discarded by a thoughtless litterbug. The skunk could see to get around, but was unable to secure food. Dasher kept his distance but managed with a well-aimed stone to break the jar and free the little stinker imprisoned in glass.

The Commission of Game and Inland Fisheries exhibit drew large crowds at the initial Virginia Sportsmen's and Motor Boat Show held in the arena at Parker Field. A live black bear was a popular feature in the exhibit.

Southeast Ass'n Proceedings Available

The Southeastern Association of Game and Fish Commissioners have initiated publication of the proceedings of their annual meetings. These may be secured at $2.00 per copy, from James W. Webb, Box 360, Columbia, South Carolina. The first is a report of papers presented at the New Orleans 1954 Conference which was arranged by the Southeastern Section or Division of the Wildlife Society, American Fisheries Society, Law Enforcement Personnel and Information and Education Specialists.

African Sheep Hunted In New Mexico

Twenty-four specially-licensed hunters all showed their stamina on the rugged rocky slopes of Canadian River Gorge and 11 of them brought back the elusive sly quarry they had gone after on the first American public hunt of Barbary sheep. The fleet, "gamiest, trickiest and disappearingest" game animal introduced from North Africa into New Mexico.

Preliminary examination by experts seemed to bear out the theory that Barbaries are not subject to any particular diseases or parasites. "We know enough about them now that we can say Barbaries will become a permanent part of New Mexico's big-game crop," said Director Homer C. Pickens of the State Department of Game and Fish. "There is plenty of broken land in New Mexico . . . that is too rough for livestock. These areas will be perfect for Barbaries.

The present herd of 200 is the result of an initial stocking of 50 animals five years ago. The largest Barbary taken in the recent hunt weighed 217 pounds. Veteran hunters vouched that the meat is "delicious," with a taste and texture somewhere between antelope and venison.

Does the Cottontail Need the Woodchuck?

Can the rabbit survive without the woodchuck? This question has been debated by sportsmen and conservationists for years, with the general feeling being that the more 'chucks there are the more rabbits there'll be, since the latter find protection in the burrows of the former.

Four years ago the Game Section of the Ohio Division of Wildlife began studies of woodchucks and cottontails penned together in 5-acre enclosures at the Woodbury Wildlife Area in Coshocton County. Each spring five pairs of rabbits were placed in each wire–protected pen with the woodchucks, and each fall all the rabbits were counted. As many as 90 rabbits were taken from one 5-acre pen. The pen tops were not covered and hawks and owls carried out some rabbits.

Did the pens with 'chuck dens save more rabbits? No. The pens without woodchuck dens often produced more rabbits than those with them during the four year study.

Waterfowl Questionnaires Sought by U. S. Fish and Wildlife Service

With the 1955-56 waterfowl shooting season a matter of history, it is hoped that the 35,000 hunters who received questionnaries from the U. S. Fish and Wildlife Service will fill out the forms correctly and return them promptly, according to the Wildlife Management Institute.

Only with a high percentage of questionnaire returns can the Federal wildlife agency make an accurate estimate of the total waterfowl bagged for the past season. This information is used in the setting of regulations for next fall's shooting season, along with information compiled from the annual midwinter count of ducks and geese and the early summer breeding ground census.

Our National Forests

"Each year, thirty-five million people visit the national forests to fish, hunt, ski, hike, or simply relax. The hunter who downs a twelve-point buck or the fisherman who catches a creel full of fighting trout will go home happy and content with his sojourn in the wilderness, but does he know or care what resources lie within the forest and with what problems it is faced? Indeed, few Americans realize the vast material and recreational wealth which they possess in their natural forests."

The recent book, *Our National Forests*, by Bernard Frank tells us what a treasure these forests are and how they are repeatedly endangered by unthinking citizens and by special interests.

The excellent 238 page book is sprinkled with photographs and contains a foreword by Justice William O. Douglas. Publisher is University of Oklahoma Press, Norman, Okla.

Wildlife Questions and Answers

Ques.: What kind of permit must be secured to hold a wild animal in captivity?

Ans.: Although it is against the policy of the Commission to issue a permit to hold a single wild animal of any species in captivity, there are three types of permits which may be issued to allow the holding of wild animals for breeding purposes. The game breeder's permit covers the raising of game animals and birds such as quail, turkeys, raccoons, foxes, etc. It costs $5 per fiscal year. The fur farming permit covers the raising of mink, muskrats, etc. and likewise costs $5 per fiscal year. The pheasant breeder's permit which permits the rearing of pheasants for food and propagation purposes is $5 a year, but may be issued free if less than 50 birds are raised per year. The Commission does not issue permits to hold any big game animal in captivity nor to hold squirrels.

Ques.: What kind of a fish is a "freckle"?

Ans.: "Freckle" is one of various names for the black crappie (**Pomoxis nigromaculatus**, LeSueur). It is also known as calico bass, speckled perch and silver. It has a statewide range, but is more common in the lower Piedmont and coastal plains. The black crappie is characterized by irregularly spaced black spots on silvery-olive sides, and a dark back, throat and forepart of belly dusky or slate-gray, mouth more oblique and body deeper in proportion to length than that of the white crappie. The front portion of the dorsal fin has seven or eight spines in distinction from the white crappie's six spines.

Ques.: How can a snake eat things obviously much too big for it?

Ans.: Snake teeth are sharp, numerous and curved inward, which gives the snake an almost unbreakable grip and tends to work backward whatever it grips and chews. A snake can unhinge its upper and lower jaws and work them independently. Its skin has great elasticity and its ribs are very mobile. In fact, all its internal organs can be pushed around to a remarkable degree. With these advantages on its side a garter snake can eat a frog three times its own diameter. It can even swallow another snake longer than itself, according to naturalist Alan Devoe.

Ques.: I have heard the silverfish described as a "living fossil" and am wondering what this means.

Ans.: The silverfish is one of the "living fossils" to be found in human habitations. The others are cockroaches and the firebrat. They all belong to a class of very ancient insects, archaic survivals in our modern world. The silverfish is nocturnal in habit but may sometimes be seen scurrying rapidly away during the day. It has a spindle-shaped body, with a pair of long thread-like antennae in front and three long thread-like tails behind, is silvery white with a yellowish tinge on antennae and legs. The silvery appearance comes from the covering of minute shiny scales.

"And he says if I lose any more weight he will just have to look for another pool-mate."

Ques.: What is the most ancient mammal which has been recorded by paleontologists for what is now Virginia?

Ans.: The most ancient mammal recorded from Virginia was **Zeuglodon**, an ancestor of the modern whale, which lived during the Eocene period. It was long and slender and probably looked more like a "sea-serpent" than today's whales.

Ques.: How is it determined which streams shall be stocked with trout from the Commission's hatcheries?

Ans.: Fish from the Commission's hatcheries are stocked in all suitable trout streams in the mountains which are open to public fishing. No fish are placed in any stream which is posted or closed to the public, nor within one half mile of such waters.

Ques.: Deer and foxes are supposed to run very fast and I am wondering if anyone has ever actually clocked them and knows just how many miles per hour they can cover.

Ans.: Although deer can hit a peak speed estimated at about 40 miles per hour, they cannot continue it very long. Ordinarily their running speed is only about half that. Both red and gray foxes have been clocked at speeds as high as 26 to 30 miles per hour. However, as with all animals, they cannot keep up such speeds.

Ques.: How many young does an opossum bear in one litter? How many young can an opossum fit into its pouch at one time?

Ans.: An opossum may have as many as 12 to 18 in a single litter. They are so tiny that even that many would hardly fill a teaspoon. The young are born 12 to 13 days after conception, in a very early stage of development. They can be carried comfortably in the pouch and are carried there for about eight weeks, until they are about the size of mice. Then they cling to the mother's back as she travels about in search of food.

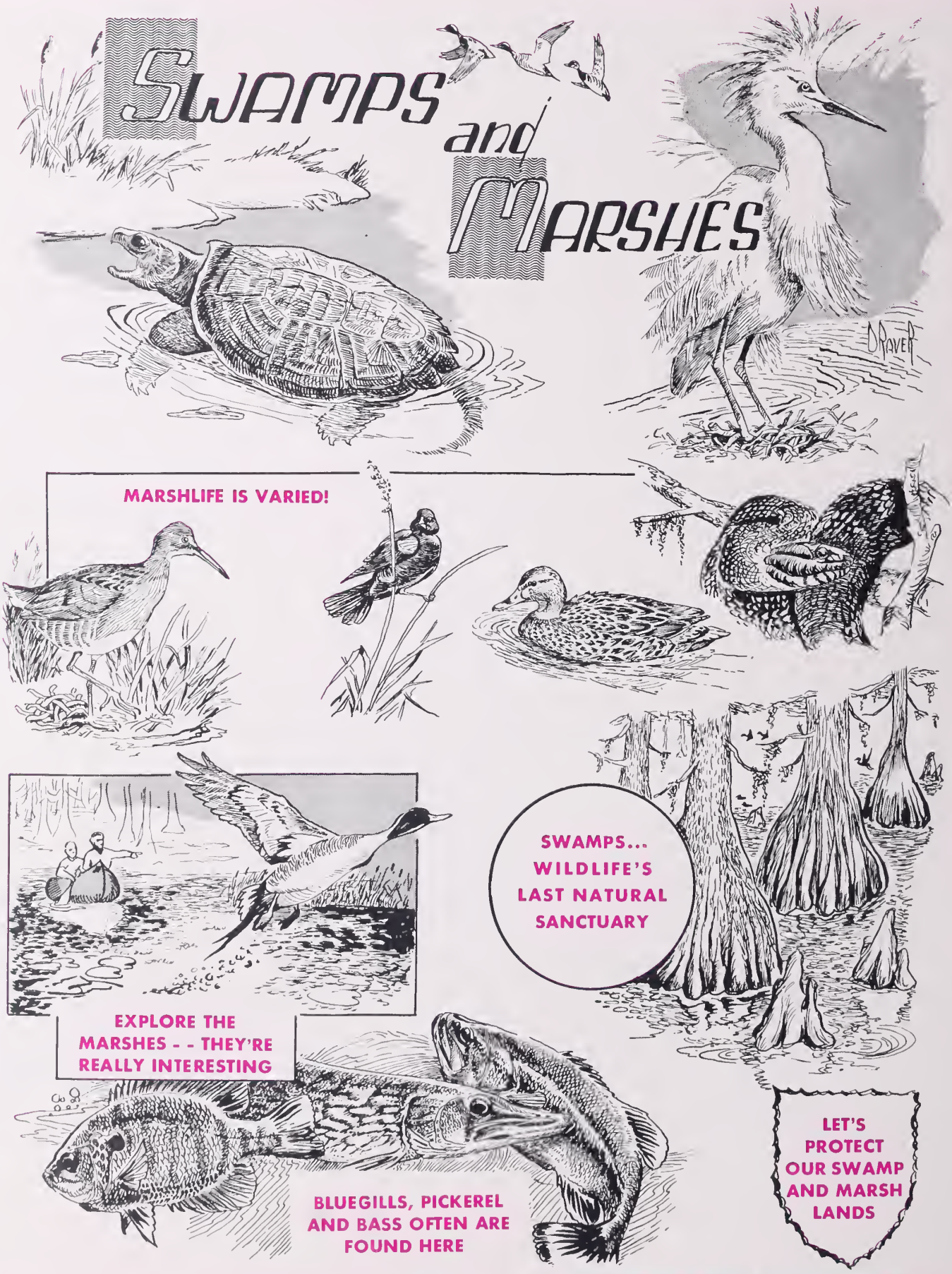
Ques.: Is it true that unlike most herons, which nest in colonies, the green heron is a hermit and usually lives alone?

Ans.: It is true that, unlike other members of the heron family, the green heron is not gregarious in its breeding habits. Occasionally a few green herons place their nests near together, but apparently it is accidental. There are no true rookeries and the birds lead a distinctly lonely life.

Ques.: The Commission stocked my pond and I am wondering if I need a license to fish and if licenses are required of my guests, relatives and children to fish in this pond?

Ans.: When a private pond is stocked by the Commission, it is thereby opened to public fishing and those fishing therein must conform with the license requirement except that children under 16 do not need a license.

Ques.: Can you tell me when statewide dog licensing first went into effect?

Ans.: On March 22, 1922, it became compulsory, by Act of the General Assembly, for all dogs over four months of age to be licensed. However, there had been some local licensing before that year.

Swamps and Marshes